WHAT IS CLAIMED IS:

1. Sputtering chamber having at least one sputtering source with a new sputter surface at least approximately symmetrical with respect to a central axis, a substrate carrier which is arranged to be drivingly rotatable about a substrate carrier axis, wherein the central axis and the substrate carrier axis are oblique with respect to one another, and the sputtering source is a magnetron sputtering source.

2. Chamber according to Claim 1, wherein the new sputter surface is substantially rotationally symmetrical with respect to the central axis.

3. Chamber according to Claim 1, wherein the central axis and the substrate carrier axis intersect at least approximately.

4. Chamber according to Claim 1, wherein, with respect to an angle β between the central axis and the substrate carrier axis,

$$30° \leq \beta \leq 60°,$$

preferably

$$40° \leq \beta \leq 55°,$$

particularly preferably

$$43° \leq \beta \leq 50°,$$

particularly

$$\beta \approx 45°.$$

5. Chamber according to Claim 1, wherein the central axis and the substrate carrier axis have a smallest spacing thereof at least approximately on a surface, which is to be sputter coated, of a substrate applied to the substrate carrier.

6. Chamber according to Claim 1, wherein the substrate carrier is configured to be positioned at least approximately horizontally.

7. Chamber according to Claim 1, wherein a projection of the new sputter surface onto a plane perpendicularly to the central axis is larger than the surface, which is to be sputter-coated and is projected on the same plane, of at least one substrate receivable on the substrate carrier.

8. Chamber according to Claim 1, wherein at least two sputtering sources are provided to simultaneously affect a substrate.

9. Chamber according to Claim 1, wherein the sputtering source has a new sputter surface which is substantially rotationally symmetrical to the central axis, and is operable to generate in the sputtering surface at least one erosion trough which extends in a circular shape around the central axis, whereby the following relationship applies to the radius r_T of the site of the largest erosion depth of the radially outermost erosion trough

and to the distance D of the site of the smallest spacing of the central axis and the substrate carrier axis from the sputtering surface,

$$1/4 \leq r_T / D \leq 2/3.$$

10. Chamber according to Claim 1, wherein the new sputter surface is substantially rotationally symmetrical with respect to the central axis, and the following relationship applies to the sputtering surface diameter φ_T and the distance D between the sputtering surface and the site of the smallest spacing of the central axis and the substrate carrier axis,

$$3/4 \leq \varphi_T / D \leq 2,$$

preferably

$$\varphi_T \approx 1.2\ D.$$

11. Chamber according to Claim 1, wherein the substrate carrier is constructed to centrally receive at least one substrate and has a substrate receiving surface centered with respect to the substrate carrier axis, whereby the following relationship applies to the diameter of the receiving surface φ_S and to the distance D of the site of the smallest spacing of the central axis and the substrate carrier axis from the new sputter surface,

$$\varphi_S / D \leq 1.8.$$

12. Chamber according to Claim 1, wherein the new sputter surface is rotationally symmetrical with respect to the central

axis and the substrate carrier is constructed to centrally receive at least one substrate and has a receiving surface centered with respect to the substrate carrier axis, whereby the following relationship applies with respect to the diameter of the substrate receiving surface φ_S and the diameter φ_T of the new sputter surface,

$$0.5 \leq \varphi_S / \varphi_T \leq 2.4.$$

preferably

$$1 \leq \varphi_S / \varphi_T \leq 2.4.$$

13. Chamber according to Claim 1, wherein the substrate carrier has a centered receiving surface for at least one substrate with a diameter φ_S to which the following relationship applies,

$$50 \text{ mm} \leq \varphi_S \leq 400 \text{ mm},$$

preferably

$$50 \text{ mm} \leq \varphi_S \leq 300 \text{ mm}, \text{ and}$$

the diameter φ_S preferably amounts to

64 mm or 120 mm or 160 mm to 240 mm.

14. Chamber according to Claim 1, wherein the substrate carrier is linearly drivingly displaceable in a direction of the substrate carrier axis.

15. Chamber according to Claim 1, wherein in a machining position, a substrate arranged on the substrate carrier or the substrate carrier itself together with the sputtering surface bounds a process space on two sides thereof.

16. Vacuum treatment system having a least one sputtering chamber comprising at least one sputtering source with a new sputter surface at least approximately symmetrical with respect to a central axis, a substrate carrier which is arranged to be drivingly rotatable about a substrate carrier axis, wherein the central axis and the substrate carrier axis are oblique with respect to one another, and the sputtering source is a magnetron sputtering source, wherein the sputtering chamber is connected by at least one transport chamber with at least one lock chamber, in which substrates are transferrable from surroundings thereof into a vacuum and are transferrable out of the vacuum into the surroundings.

17. Vacuum transport chamber for disk-shaped substrates, comprising:

a base plate structure having an interior surface which borders an interior of the chamber on one side thereof,

a covering structure which is situated essentially parallel opposite an interior surface of the base plate structure and which has at least two substrate passage openings which are adapted to a substrate disk surface, and

a transport device which is rotationally drivingly movable about an axis of rotation perpendicular to the base plate structure, in the chamber, with at least one substrate receiving

device so as to be brought into alignment with a respective one of the openings, wherein a controlled sealing arrangement establishes an edge of at least one of the openings with the substrate holding device brought into alignment therewith and a substrate provided thereon.

18. Vacuum transport chamber according to Claim 17, wherein one of the openings is equipped with a cover, closeable in a motor-driven manner with respect to surroundings, whereby the cover and the workpiece receiving device brought into alignment with the one opening and a workpiece on the respective receiving device forming interior-side and exterior-side lock valves for a lock chamber integrated at the one opening.

19. Vacuum transport chamber according to Claim 18, wherein the cover is configured to be indented toward the chamber for reducing lock volume to be pumped down.

20. Vacuum transport chamber according to Claim 17, wherein the sealing arrangement has at least one seal which extends on an interior side of the chamber around an opening and is one of pneumatically and hydraulically operated.

21. Vacuum transport chamber according to Claim 18, wherein the sealing arrangement comprises a seal which surrounds on the chamber side an opening provided with the cover and is one of

pneumatically and hydraulically operable, and an additional surrounding sealing arrangement is arranged opposite this seal on the interior basic plate structure surface and is one of pneumatically and hydraulically operable, the two sealing arrangements accommodating in a sealing manner between one another the workpiece receiving device aligned with the opening.

22. Vacuum transport chamber according to Claim 17, wherein the workpiece receiving device has at least one central opening.

23. Vacuum transport chamber according to Claim 19, wherein the cover is indented such that, in a closed state thereof, an interior surface thereof is closely adjacent a workpiece disk on the workpiece receiving device aligned with the opening.

24. Vacuum transport chamber according to Claim 17, wherein two of the openings have centers with a connection line therebetween offset to the axis of rotation of the transport device, and the workpiece receiving device, from alignment with one of the openings to an alignment with the other of the openings, is configured to carry out a swivelling movement about the axis of rotation of not more than 120°.

25. Vacuum transport chamber according to Claim 24, wherein the openings on the covering structure are separated such that the flanging-on of a vacuum treatment chamber can take place in-

between.

26. Vacuum transport chamber according Claim 24, wherein the axis of rotation of the transport device is flanged laterally onto the base plate structure.

27. Vacuum transport chamber according to Claim 17, wherein at least one of a workpiece lifting drive and a workpiece rotating drive is mounted at at least one of the openings, opposite the covering structure in a centered manner with respect to at least one opening, on the base plate structure.

28. Vacuum transport chamber according to Claim 27, wherein the workpiece receiving device has a central part which is arranged to be lifted perpendicularly to an interior base plate structure surface off the remaining transport device part connected with the axis of rotation, with which central part the at least one lift and rotating drive is then controllably bringable into an operative connection when the workpiece receiving device is aligned with the one opening having the drive.

29. Vacuum treatment system having a vacuum transport chamber comprising:

a base plate structure having an interior surface which borders and interior of the chamber on one side thereof,

a covering structure which is situated essentially parallel opposite an interior surface of the base plate structure and which has at least two substrate passage opening which are adapted to a substrate disk surface, and

a transport device which is rotationally drivingly movable about an axis of rotation perpendicular to the base plate structure, in the chamber, with at least one substrate receiving device so as to be brought into alignment with a respective one of the openings, wherein a controlled sealing arrangement establishes an edge of at least one of the openings with the substrate holding device brought into alignment therewith and a substrate provided thereon, wherein a vacuum treatment station is flanged at at least one of the openings onto the covering structure of the vacuum transport chamber.

30. System according to Claim 29, wherein the station is at least one sputtering source with a new sputter surface at least approximately symmetrical with respect to a central axis, a substrate carrier which is arranged to be drivingly rotatable about a substrate carrier axis, wherein the central axis and the substrate carrier axis are oblique with respect to one another, and the sputtering source is a magnetron sputtering source.

31. System according to Claim 30, further comprising a vacuum transport chamber wherein one of the openings is equipped with a

cover closeable in a motor-driven manner with respect to surroundings, whereby the cover and the workpiece receiving device brought into alignment with the one opening and a workpiece on the respective receiving device forming interior-side and exterior-side lock valves for a lock chamber integrated at the one opening, two of the openings are provided on the transport chamber, and the central axis of the sputtering source on one of the two openings is sloped away from the other opening, and a motor drive for a cover is arranged at the other opening on a connection flange for the source.

32. System according to Claim 31, wherein the cover is swivellably disposed on a swivel bearing with a first swivelling axis parallel to the covering structure, which swivelling axis is arranged between the openings and the source is swivellably disposed about a second swivelling axis parallel to the covering structure, which second swivelling axis, with respect to the opening provided with the source, is situated opposite the first swivelling axis of the cover.

33. Method for producing coated data storage disks or wafers, comprising carrying out at least one coating step by an oblique-angled magnetron sputtering on to the rotating substrate.

34. Use of a sputtering chamber having at least one sputtering source with a new sputter surface at least approximately

symmetrical with respect to a central axis, a substrate carrier which is arranged to be drivingly rotatable about a substrate carrier axis, wherein the central axis and the substrate carrier axis are oblique with respect to one another, and the sputtering source is a magnetron sputtering source, having a transport chamber of a system wherein the sputtering chamber is connected by at least one transport chamber with at least one lock chamber, in which substrates are transferrable from surroundings thereof into a vacuum and are transferrable out of the vacuum into the surroundings for coating optical data storage substrates, masters, piezoelectric wafers or wafers for semiconductor production.